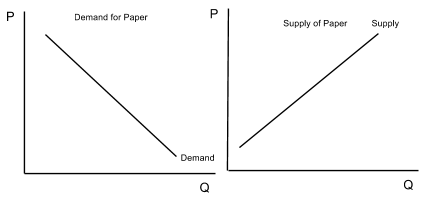
**1.1 Markets, Demand and Supply**

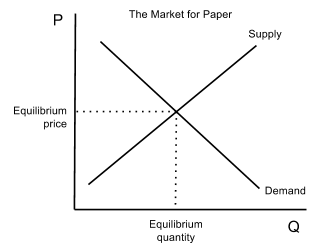
*Market Equilibrium*

**Introduction:** In our previous unit we were introduced to the theories of *demand and suppy*. We learned that the price of a good or a resource determines *how much* consumers are willing and able to buy and *how much* producers are willing and able to supply. We also learned all the factors that can lead to a *change or a shift* in demand or supply. Of course, we learned the graphs as well.



**Example:** In the graphs above we see the demand and the supply of paper. On the left we see that as the price of paper increases, the quantity that consumers demand decreases. On the right we see that as the price of paper increases, the quantity supplied by paper producers increases.

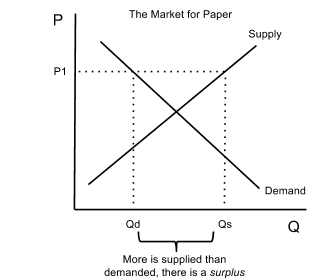
**Finding Equilibrium price and quantity:** *Equilibrium* means “balance”. In the market for a good or resource, equilibrium is achieved when the quantity that producers are willing and able to supply is exactly equal to the quantity that consumers are willing and able to buy. Graphically, this occurs where *demand equals supply*.



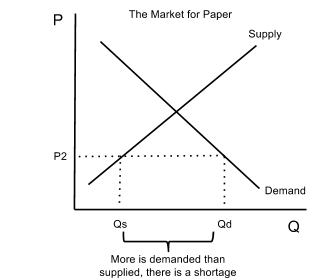
**Example:** When we put the supply and demand for paper together in a single graph, it is easy to find the equilibrium price and quantity of paper, *this is simply where the demand and supply intersect!* At the “equilibrium price” the quantity demanded (found by drawing the dotted line to the demand curve and down to the ‘Q’ axis) is exactly equal to the quantity supplied (found by drawing the dotted line to the supply curve and down to the ‘Q’ axis). This is the *equilibrium quantity*.

**What makes equilibrium the “best” price and quantity combination in a market?**

If paper were selling for *any other price* than the equilibrium price, the market would be in *disequilibrium*, or “out of balance”. The quantities supplied and demanded would not be equal, meaning there would be either *shortages*  or *surpluses* of the good in the market.



**Example #1:** In the graph above, producers are trying to charge a higher price (P1) and are producing a larger quantity (Qs). But because quantity demanded decreases as price increases, consumers are not willing to buy as much as paper manufacturers are producing. Therefore, Qs>Qd, and there is a surplus of paper in the market.



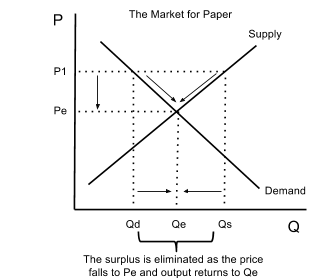
**Example #2:** In the graph above, producers are charging a lower price (P2) and are producing a smaller quantity of paper (Qs). But since quantity demanded increases as price decreases, consumers are willing and able to buy a much larger quantity of paper than is being produced (Qd). Therefore, Qd>Qs and there is a shortage of paper in the market.

**Why does the equilibrium price always prevail?**

In the two examples above, there was a price that was either *too high* (example #1) or *too low* (example #2). Whenever this kind of *disequilibrium* occurs, *market forces* (what the father of Economics Adam Smith referred to as the *invisible hand*), will cause the price to either decrease or increase back to the actual equilibrium price.

Imagine, for example, that paper manufacturers are trying to charge P1 for their product. There will simply be more paper for sale than consumers are willing to buy. While *some people* are willing to buy paper at the high price, *most people* will not. If producers wish to keep producing more paper, they first must sell the paper they have already produced, and to do so *they must lower the price of paper!* As the price falls, the quantity demanded will increase and the producers will also begin to produce less (so quantity supplied will decrease).

The market is only back in equilibrium when the price is at the level where Qd=Qs. Graphically, this change in the market looks like this:



Above, we can see how *market forces* will force producers to charge a lower price for their paper in order to sell all that they have produced.

If a good or resource’s price is *too low* and there is a shortage, market forces will work in the opposite direction and drive the price up until the shortage is eliminated. A higher price will allow producers to manufacture a greater quantity, but discourage consumers from buying the good, until the Qs has increased and the Qd has decreased, and the two are equal.

**Changes in Equilibrium Price and Quantity**

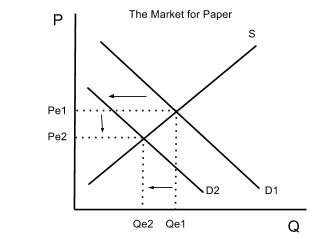
The examples above show what happens when a market is *in equilibrium* (producing where Qd=Qs) and *out of equilibrium* (producing where Qd and Qs are not equal). But we have not yet explained what can cause a *change in equilibrium price and quantity*. Here’s where we can apply what we learned in our last unit on the determinants of demand and supply.

You will recall that there is a difference between a change in *quantity demanded* and a change in *demand,* and there is a difference between a change in *quantity supplied* and a change in *supply.* Whenever a factor that affects demand or supply *other than the good or resource’s price* changes, the entire demand or supply curve will shift and there will be a *change in demand or supply*. The table below summarizes some of the factors that can shift demand and supply.

|  |  |
| --- | --- |
| Determinants of Demand | Determinants of Supply |
| * The tastes of consumers * The price of related goods (substitutes or complements) * The expectations of consumers of future prices * Consumers’ Incomes (depends on whether a good is normal or inferior) * The number of consumers * Special circumstances | * Government subsidies and taxes (subsidies increase supply, taxes decrease supply) * Technology used in the production of the good * Other goods’ prices (substitutes in production) * Resource prices (raw materials or other resources needed to produce a good) * The expectations of producers of future prices * The number of producers * Special circumstances |

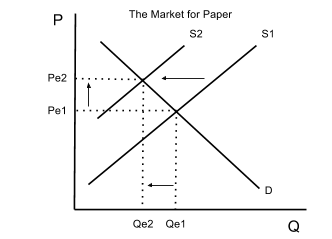
Whenever any of the determinants of demand or supply change for a good or resource *there will be a change in the equilibrium price and quantity*.

**Example #1:** Assume that due to the increasing popularity oftablet computers, schools and universities are using much less paper than they used to. This can be considered a *special circumstance* that will *reduce the demand for paper*. In the graph below, we can see the impact this will have on equilibrium in the market for paper.



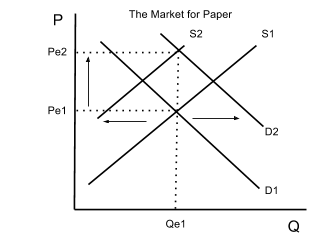
The decrease in demand for paper has caused the equilibrium price and the equilibrium quantity of paper to decrease. Consumers are now *willing and able* to buy less paper at every price. In response to the falling demand, paper producers have cut their prices and reduced their output of paper.

**Example #2:** Assume now due to concerns over deforestation, the government has placed a tax on the production of all paper. A tax increases the costs of producing paper, which makes paper production a less desirable industry, reducing the supply of paper. The effect of the government’s taxation of paper production can be seen below.



The decrease in the supply of paper resulting from the government’s new tax has made paper more scarce. Since demand has not changed, the fall in supply causes the price to rise and the quantity demanded to decrease. The equilibrium price is now higher and the equilibrium quantity is lower.

**Example #3:** Of course, often both demand and supply for a good will change. Assume the following: Due to an expectation of paper shortages in the future, schools all across the country begin stocking up on paper now, increasing the current demand for paper. At the same time, several companies that produce paper go out of business and have to shut down their paper factories. One determinant of demand has changed (expectations of future prices) and one determinant of supply has changed (number of producers), therefore there will be shifts in both demand and supply.



Above we can see what could happen if demand increased at the same time that supply decreased. Clearly, there is a large increase in the good’s price. Whether there is a change in the equilibrium quantity depends on which curve shifts more, demand or supply. In this graph, the decrease in supply alone would have caused quantity to decrease, but since demand increased at the same time, consumers were *willing and able* to pay more for paper, therefore there was a *movement along* the new supply curve (S2) even as the supply shifted to the left, creating an incentive for the now smaller number of paper producers to increase their quantity supplied as the price consumers are willing to pay increases.

**Practice Activity:** It is now time for you to practice what you have learned about equilibrium and disequilibrium in the markets for different goods and resources. Read the instructions for each problem and complete the answer to the best of your ability.

**Cars:** The market for automobiles in Switzerland can be affected by several factors. In the problems below, draw a diagram showing the change that would occur in the market based on the scenario described. Circle the impact on demand, supply, price and quantity of each change. For each scenario, assume the market begins in equilibrium

1. The market for automobiles is in equilibrium and all the cars produced will be sold. No one who wanted a car was unable to buy one.

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| --- | --- |
| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. For no apparent reason, automobile manufacturers decided to increase the price of all of their cars by 20%.

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| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. The global price of steel has risen.

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| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. Government has raised the annual registration fee for all newly purchased automobiles.

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| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. The government reduces the import taxes on all foreign automobiles and new bus lines are opened up in every major city.

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| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. Immigration has increased the number of people living in Switzerland and oil prices have risen.

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| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

**Blue Jeans:**

1. A drought in the American South wipes out half of the cotton crop this year.

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| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. A successful advertising campaign by Levi’s.

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| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. A free trade agreement with Bangladesh allows garments to be imported “duty free”

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| --- | --- |
| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. The price of clothes made of sythetic fibers decreases and there is a strike by workers in blue jeans factories in Asia.

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| --- | --- |
| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. A lower minimum wage in China.

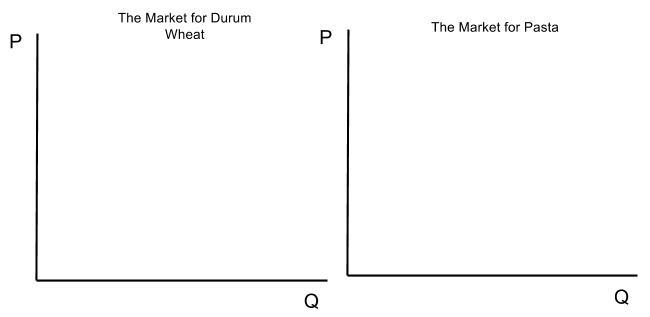
|  |  |
| --- | --- |
| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

1. Concerns in Europe over the environmental impact of blue jean production lead the Chinese government to enact tighter regulations on producers.

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| --- | --- |
| **Demand:**  Inc / Dec / No change  **Supply:**  Inc / Dec / No change  **Price:**  Inc / Dec / No change / Uncertain  **Quantity:**  Inc / Dec/ No change / Uncertain  Which determinant of demand or supply has changed?  **Demand: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Supply: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |  |

**Assignment:** *The following assignment will be submitted and graded as a “minor assessment”.*Follow [this link](http://www.toledoblade.com/Food/2011/09/02/Pasta-prices-rise-after-North-Dakota-loses-million-acres-of-wheat-to-heavy-rain-flooding.html) and read the article that is there. In the graphs below, illustrate the changes described in the article on the two market diagrams provided. *Please use the prices and quantities mentioned in the article ON YOUR GRAPHS!*

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| --- | --- |
| Items to include on your graph for durum wheat:   * The current supply of durum wheat * Last year’s supply of durum wheat * The Demand for durum wheat * The current price of durum wheat * The price of durum wheat last year * The equilibrum quantities of durum wheat this year and last year. | Items to include in your graph for pasta:   * THe current supply of pasta * Last year’s supply of pasta * The demand for pasta * The current price of pasta * Last year’s pasta price * The equilibrium quantities for pasta this year and last year. |



|  |
| --- |
| Explain how the floods in the American Midwest has affected the markets for durum wheat and pasta. Refer to all the “items” you identified on the two graphs above. |